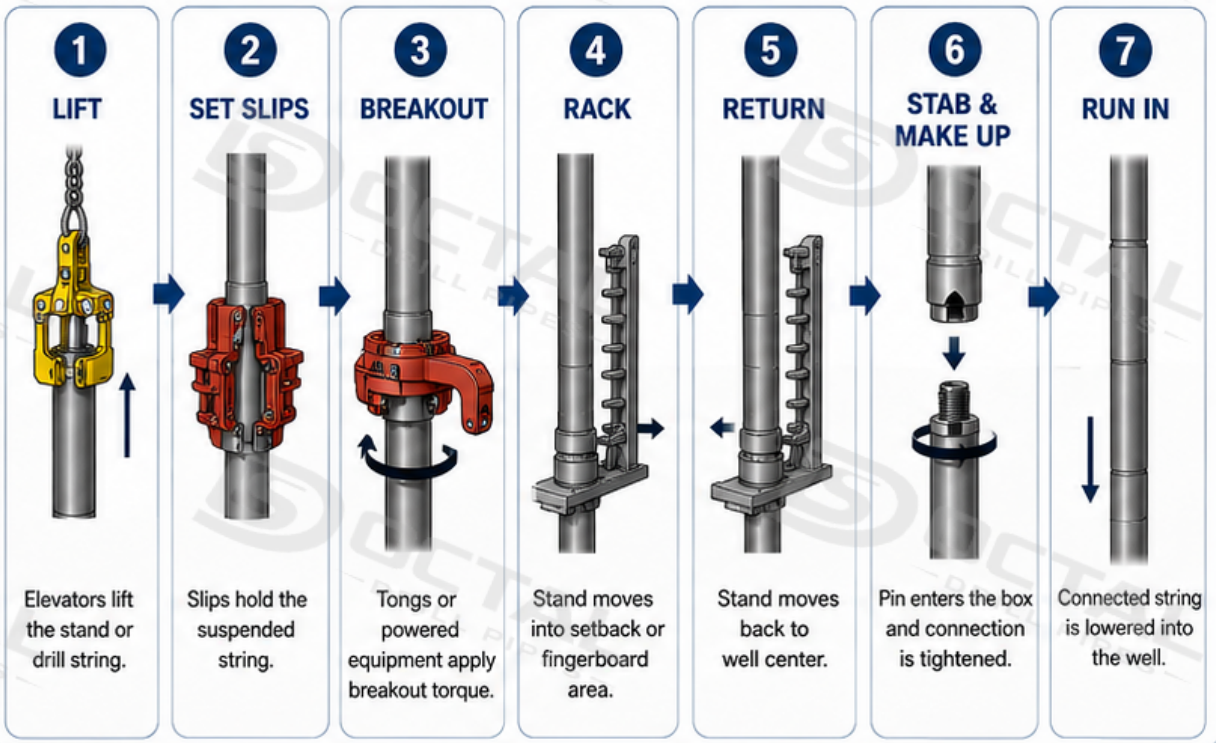
Drill Pipe Tripping & Handling Reference

Tripping Stages, Contact Points and Handling Logic

Tripping Stage	Main Action	Drill Pipe Area Involved
1 Lift	Elevators lift the stand or drill string	Tool joint or elevator contact area
2 Set slips	Slips hold the suspended string	Pipe body or slip contact area
3 Break connection	Tongs or powered equipment apply breakout torque	Tool joint OD, pin and box
4 Rack the stand	Stand moves into setback or fingerboard area	Pipe ends and external surface
5 Return the stand	Stand moves back to well center	Pipe body and connection ends
6 Stab connection	Pin enters the box	Pin noes, threads and box
7 Make up connection	Connection is tightened	Threads, shoulders and tool joint
8 Run in hole	Connected string is lowered	Complete drill string

TRIPPING PROCESS OVERVIEW



Different Handling Points, Different Contact Surfaces

During tripping operations, handling equipment contacts different areas of the finished drill pipe assembly. Loads are transferred at elevator contact areas, pipe body, tool joints, pin and box, and connection threads.

Not All Handling Tools Contact the Same Surfaces

Elevators, slips and tongs contact different surfaces and create different loading paths. Understanding these contact points is critical for safe handling and equipment selection.

Use Approved Handling Equipment and Follow Rig Procedures

Always use handling equipment that meets the finished-joint specification. Follow approved procedures to ensure safe tripping and protect personnel and equipment.

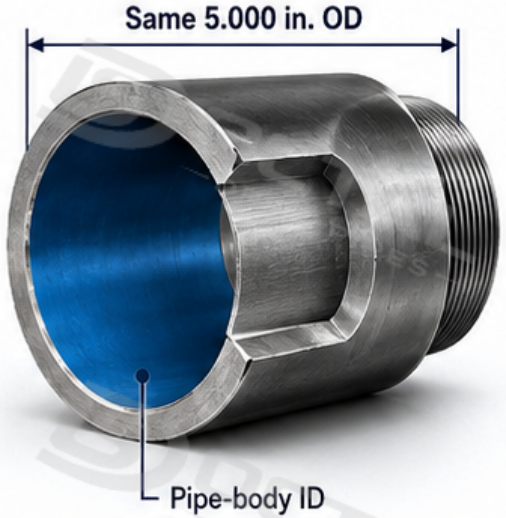
NOTE: Nominal OD, grade and pipe-body dimensions alone do not fully describe handling contact points and loads. Handling depends on contact location, equipment type and the completed joint geometry.

5 in. Drill Pipe Size & Weight Comparison

Same nominal OD, different wall thickness, internal diameter and handling geometry.

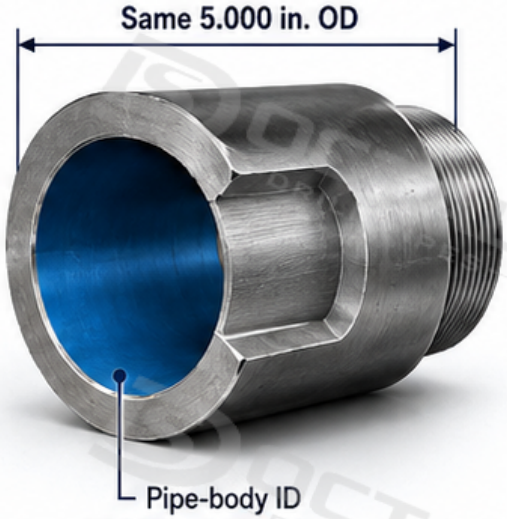
Parameter	Configuration A	Configuration B
Nominal OD	5.000 in. / 127.0 mm	5.000 in. / 127.0 mm
Nominal weight	19.50 lb/ft / 29.05 kg/m	25.60 lb/ft / 38.10 kg/m
Wall thickness	0.362 in. / 9.19 mm	0.500 in. / 12.70 mm
Pipe-body ID	4.276 in. / 108.62 mm	4.000 in. / 101.60 mm
Upset type	IEU	IEU
Flow area	14.36 sq in.	12.57 sq in.
Velocity at 500 gpm	11.17 ft/s	12.77 ft/s

19.50 lb/ft — thinner wall, larger ID



4.276 in. / 108.62 mm
Flow area: 14.36 sq in.

25.60 lb/ft — thicker wall, smaller ID



4.000 in. / 101.60 mm
Flow area: 12.57 sq in.

Illustrative Tool Joint Bore Reference

Tool Joint ID	Flow Area (sq in.)	Velocity at 500 gpm (ft/s)	Relative Velocity
2.750 in.	5.94	27.01	1.74x
3.250 in.	8.30	19.34	1.24x
3.500 in.	9.62	16.67	1.07x
3.625 in.	10.32	15.54	1.00x

What the comparison proves

The same nominal OD can still produce different internal area, velocity and finished-joint handling geometry.

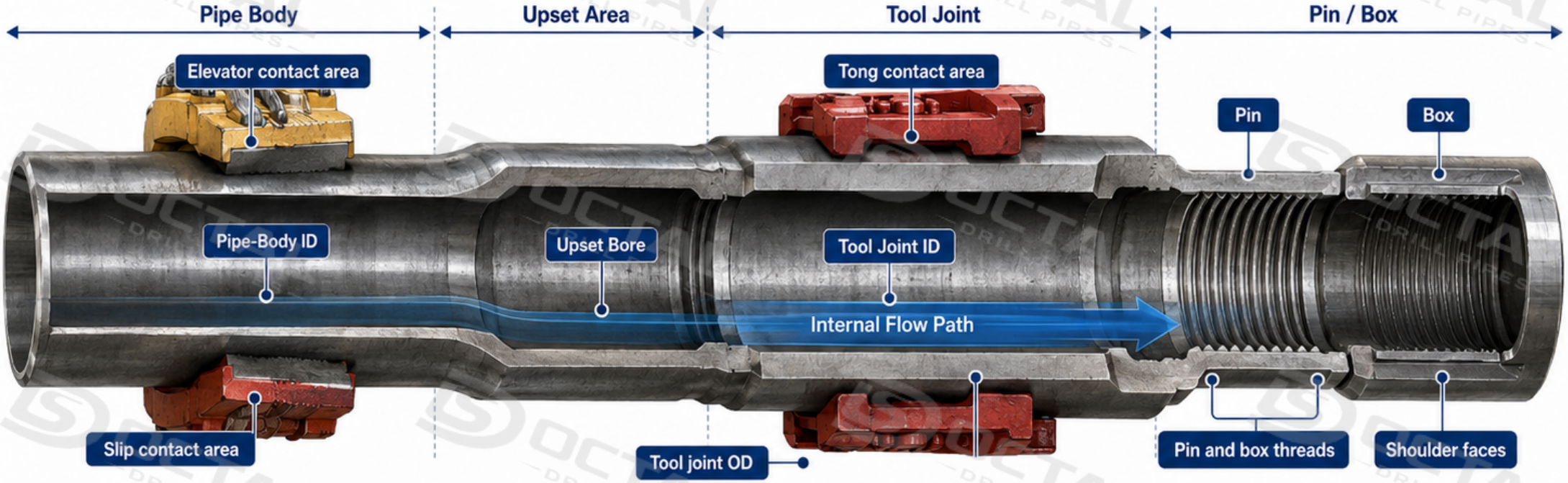
Handling implication

Nominal OD alone does not represent actual mass, tool-joint geometry, or contact dimensions.

NOTE: Illustrative geometry only. Actual finished-joint dimensions and approved tool-joint IDs must be confirmed from the selected specification and product drawing.

Where Equipment Contacts and Damages the Finished Joint

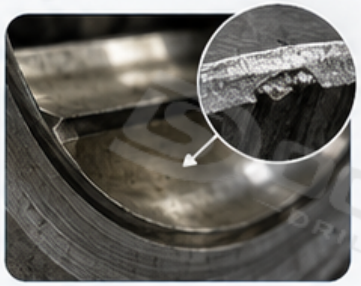
Finished-joint geometry determines where handling loads, wear and impact are introduced during tripping.



1 Pin and box threads

Repeated breakout and make-up cycles can introduce galling, impact, contamination or cross-threading.

2 Shoulder faces



Raised metal, dents or debris can interfere with shoulder contact even when threads still look acceptable.

3 Tool joint OD

Tong marks, hardbanding wear and handling impact tend to concentrate on the outside diameter.

4 Pipe body and slip area

Repeated gripping can leave slip marks, cuts, gouges or local deformation.

Typical Contact Source

Handling tool	Primary contact area
Elevators	elevator shoulder / lifting profile
Slips	pipe body
Tongs	tool joint OD and connection area
Setback / transfer equipment	pipe ends and external surfaces

The same visible mark does not always have the same significance. Location, shape, depth and the applicable inspection criteria must all be considered.

Pre-Run Review and Finished-Joint Matching Checklist

Before tripping in, review the actual finished-joint specification, handling compatibility and visible condition together.

REVIEW ITEMS

Item	What must be confirmed
1 Finished-joint OD	Actual outside dimensions that elevators, slips and tongs will contact
2 Tool joint OD	External geometry and available tong space
3 Tool joint ID	Internal passage through the connection
4 Pipe-body ID	Internal passage through the pipe body
5 Upset type	IEU, EU or IU pipe-end geometry before the tool joint
6 Connection designation	Exact rotary-shouldered connection identity
7 Pipe grade	E75, X95, G105 or S135 body grade
8 Length / range	Pipe grouping and stand arrangement
9 Handling equipment match	Elevator, slip and tong compatibility
10 Thread protector condition	Protection before handling and running in
11 Visual condition	Damage, marks and general surface condition
12 Marking / traceability	Product identification and inspection status

PRE-RUN REVIEW LOGIC

1. **Review specification**
   Confirm the approved finished-joint specification and all dimensional requirements.
2. **Confirm equipment match**
   Verify elevators, slips and tongs are compatible with the finished-joint geometry.
3. **Inspect connection and surfaces**
   Check connection features, threads, protectors and visible condition.
4. **Verify marking and status**
   Confirm product identification, traceability and inspection status.
5. **Release for running in**
   All items confirmed. Release in accordance with the rig contractor's procedure.

Grade is not handling geometry

E75, X95, G105 and S135 describe body strength grades and do not define tool-joint profile, contact dimensions or the exact finished-joint geometry.

Upset type belongs in the same review

IEU, EU and IU change the pipe-end geometry before the tool joint is welded and should be confirmed together with body size and tool-joint dimensions.

Practical rule

Handling equipment should be selected from the approved finished-joint specification, not from nominal body OD or grade alone.

Final release should be based on the approved specification, visible condition, traceability and the rig contractor's operating procedure.